

## REMARKS

The Official Action of 27 February 2006 has been carefully considered and reconsideration of the application as amended is respectfully requested.

Claim 1 has been amended with the incorporation of limitations to the amounts of the recited methylisothiazolone ("MIT") and octylisothiazolone ("OIT"), which are shown in the specification as filed to be critical for achievement of the advantageous effects of the claimed ink. In this respect, Applicant respectfully calls the Examiner's attention to the tables in the specification, and in particular Table 3, which show the results of evaluations performed on the claimed inks (see specification at pages 13-14 for inks of Examples 1-8) and comparative inks (see specification at page 19 for inks of Comparative Examples 1 and 2). (For convenience, these tables are attached along with a brief explanation for each and, for Tables 3 and 4, test numbers have been added for identification purposes.) The evaluation criteria can be found in the specification as filed at page 15, lines 1-3 (for Table 1); page 16, lines 4-21 (for Table 2); and page 17, lines 15-27 and page 19, lines 21-24 (for Tables 3 and 4).

Table 3 describes a demarcation between (a) the claimed inks, wherein the MIT and OIT are present in amounts of at least 10 ppm and 100 ppm respectively and the combined amount of MIT and OIT is at least 110 ppm, and (b) the comparative inks that do not fall within these limits. (Compare the inks in each of test numbers 3, 4, 6, 8 and 9, wherein the amounts of MIT and OIT fall within the claim limits and the inks have a score of "A" or "B" in each of

the evaluations, with the inks of test numbers 1, 2, 5 and 7, wherein the amounts fall below the claim limits and the inks have a score of “C” or worse for at least one of the evaluations. The specification at page 17, lines 23-27 describes an ink having this score as “impractical”.) Table 3 also describes a demarcation between (a) the claimed inks, wherein the combined amount of MIT and OIT is no more than 1300 ppm and the MIT and OIT are present in amounts of no more than 500 ppm and 800 ppm respectively (provided that the MIT can be present in an amount of 800 ppm if the OIT is present in an amount of 200 ppm or less- -compare Examples 11 and 12), and (b) the comparative inks that do not fall within the claim limits. (Compare the inks in each of test numbers 9-11, which fall within the claim limits and have a score of “A” or “B” in each of the evaluations, with the inks of test numbers 12-14, wherein the amounts are above the claim limits and have a score of “C” or worse for at least one of the evaluations.)

Applicant respectfully notes that the specification at page 18, lines 5-9, describes an upper limit of MIT of 500 ppm, an upper limit of OIT of 800 ppm and an upper limit of the combined amount of MIT and OIT of 1000 ppm, but one of skill in the art would appreciate from the results in Table 3 that, as of the filing date of the application, Applicants actually had possession of inks with an upper limit of the combined amount of MIT and OIT of 1300 ppm (test number 10), and an upper limit of MIT of 800 ppm (test number 11) provided that the OIT is not more than 200 ppm (compare test numbers 11 and 12). Each of the inks of test numbers 10 and 11 scored “A” or “B” in the evaluations, and are thus considered “practical” according to the specification definition. Accordingly, it is respectfully submitted that the specification conveys to one of skill in the art that Applicant had possession of the invention

now claimed as of the application filing date and thus provides support for the invention defined by the amended claims under the written description provisions of 35 USC 112, first paragraph (see MPEP 2163.02).

The tables in the specification, and in particular Table 3, establish both (a) the result-effective nature of controlling the claimed two (2) sets of parameters (the respective amounts of the MIT and OIT, and the combined amount of MIT and OIT), and (b) the criticality of maintaining the claimed inks within the claimed parameters. As shown in Table 3, (a) if the combined amount of MIT and OIT is less than that claimed, the ink would be “impractical” in at least one of the evaluations (see test numbers 1 and 2); (b) if the amount of OIT is less than that claimed, the ink would be “impractical” in at least one of the evaluations even if the combined amount of MIT and OIT is within the claimed range (see test number 7); and (c) if the amount of MIT or the combined amount of MIT and OIT is above the claimed limits, the ink would be “impractical” in at least one of the evaluations (see test numbers 12-14).

Applicant respectfully submits that none of the references cited at paragraphs 3-7 of the Official Action shows or suggests the result-effective nature of controlling both sets of parameters claimed- -the respective amounts of MIT and OIT **and** the combined amount of MIT and OIT, or the criticality of the recited amounts for the claimed inks. Komatsu (WO00/75245), which describes an ink composition containing MIT and OIT, describes a broad range for a combined amount of MIT and OIT (0.01-0.5%, i.e., 100-5000 ppm). Not only does this reference not show the criticality of the combined amount of MIT and OIT in the

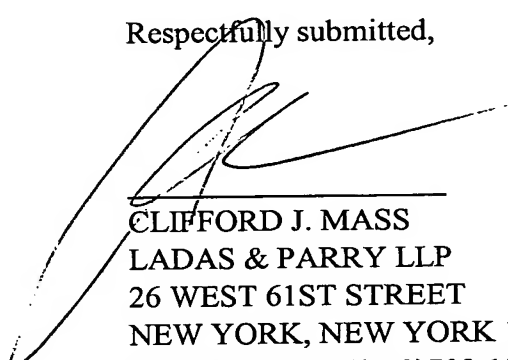
ink as claimed, it does not show or suggest the result-effective nature of also limiting the respective amounts of MIT and OIT in the ink as claimed. Indeed, as can be seen from Table 4 in the specification (reproduced above), in an ink comprising a surface treated pigment (as in the case of Komatsu), the respective amounts of MIT and OIT do not appear to be result-effective within the tested range so long as the combined amount of MIT and OIT is sufficiently high (compare test numbers 1-3 with the other test numbers in Table 4). Accordingly, it could not have been obvious for one of skill in the art from Komatsu to optimize the two (2) sets of parameters as claimed (see MPEP 2144.05(II)(B)).

EP676140 discloses a blend of 1-400 ppm of MIT and OIT, with described ratios between MIT and OIT (500:1; preferably 1:20; more preferably 1:10 to 10:1). One of skill in the art would have to pick and choose from among a huge number of possibilities to arrive at the claimed parameters: a combined amount of MIT and OIT within the claimed range with the respective amounts of MIT and OIT also being within the claimed range. However, there would have been no motivation, absent the hindsight provided by the present specification, to make the necessary selection. The reference merely discloses that the MIT and OIT blend is effective in preventing fungi and bacteria within the **described** range; it does not disclose the criticality of the **claimed** range for an ink composition or the result-effective nature of the claimed combination of parameters for an ink composition with the recited pigment. In this respect, and as discussed above with regard to Table 4, the claimed parameters are not result-effective within the claimed range for all ink compositions, such as ink compositions comprising a surface treated pigment.

In view of the above, and since none of the other cited references shows or suggests the result effective nature of the claimed combination of parameters within the claimed range, it is respectfully submitted that the cited references do not set forth even a *prima facie* case of obviousness for the invention as now claimed (See MPEP 2144.05(II)(B) (“Only Result-Effective Variables Can Be Optimized”). Even assuming for the sake of argument that the references were capable of setting forth a *prima facie* case, it is respectfully submitted that the evidence of record showing the criticality of the claimed parameters (see discussion above) would be sufficient to rebut any such alleged case of *prima facie* case. In this respect, it is well settled that an applicant may rebut a *prima facie* case based on overlapping ranges by showing the criticality of the claimed range. See MPEP 2144.05 (III).

Accordingly, Applicant respectfully submits that all rejections and objections remaining of record have been successfully traversed and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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[Table 1]

Example number		1	2	3	4	5	6	7	8
Example	storage stability	A	A	A	A	A	A	A	A
	discharge stability	A	A	A	A	A	A	A	A
no MIT	storage stability	C	C	C	C	B	C	C	C
	discharge stability	C	C	C	C	C	C	C	C
no OIT	storage stability	B	B	C	C	B	B	C	C
	discharge stability	B	C	C	C	B	C	C	C

Examples: Inks 1 to 8 (MIT 100 ppm, OIT 200ppm)

Comparative Examples: Inks with no MIT or no OIT

[Table 2]

	Example number	1	2	3	4	5	6	7	8
Example	antiseptic and antifungal	A	A	A	A	A	A	A	A
	Fixability	A	A	A	A	A	A	A	A
	clog elimination	A	A	A	A	A	A	A	A
no humectant	antiseptic and antifungal	A	A	A	A	A	A	A	A
	Fixability	A	A	A	A	A	A	A	A
	clog elimination	D	D	D	D	D	D	D	D
no dispersed polymer (surface treated pigment)	antiseptic and antifungal	A	A	A	A	A	A	A	A
	fixability	D	D	D	D	D	D	D	D
	clog elimination	A	A	A	A	A	A	A	A

Examples : Inks 1 to 8 (MIT 100 ppm, OIT 200 ppm) including a humectant and dispersed polymer

Comparative Examples : Inks with no humectant and no dispersed polymer

[Table 3]

	MIT added	OIT added	Antiseptic				Antifungal				Storage			
	amount (ppm)	amount (ppm)	effect				effect				stability			
	Example number		1	2	3	4	1	2	3	4	1	2	3	4
Test 1	5	5	D	D	D	D	D	D	D	D	D	D	D	D
Test 2	5	10	C	C	C	D	B	B	B	B	D	C	C	D
Test 3	10	100	B	B	B	B	A	A	A	A	A	A	A	A
Test 4	10	300	A	A	A	A	A	A	A	A	A	A	A	A
Test 5	100	5	A	A	A	A	C	C	C	D	A	A	A	A
Test 6	100	100	A	A	A	A	A	A	A	A	A	A	A	A
Test 7	300	5	A	A	A	A	C	C	C	C	A	A	A	A
Test 8	300	100	A	A	A	A	A	A	A	A	A	A	A	A
Test 9	500	100	A	A	A	A	A	A	A	A	A	A	A	A
Test 10	500	800	A	A	A	A	A	A	A	A	B	B	B	B
Test 11	800	200	A	A	A	A	A	A	A	A	B	B	B	B
Test 12	800	500	A	A	A	A	A	A	A	A	C	C	C	D
Test 13	1000	500	A	A	A	A	A	A	A	A	D	D	D	D
Test 14	1000	800	A	A	A	A	A	A	A	A	D	D	D	D

Examples: MIT 10 – 800 ppm, OIT 100 – 800 ppm, and  $110 \text{ ppm} \leq \text{MIT} + \text{OIT} \leq 1300 \text{ ppm}$

Comparative Examples: Inks outside the above ranges

[Table 4]

	MIT added amount (ppm)	OIT added amount (ppm)	Antiseptic effect		Antifungal effect		Storage stability	
	Examples		Dye	S.T.	Dye	S.T.	Dye	S.T.
Test 1	5	5	D	C	D	A	D	A
Test 2	5	10	C	B	C	A	D	A
Test 3	10	100	C	B	C	A	A	A
Test 4	10	300	C	A	C	A	A	A
Test 5	100	5	A	A	C	A	A	A
Test 6	100	100	A	A	C	A	A	A
Test 7	300	5	A	A	C	A	C	A
Test 8	300	100	A	A	B	A	C	A
Test 9	500	100	A	A	B	A	C	A
Test 10	500	800	A	A	B	A	C	A
Test 11	800	200	A	A	A	A	D	A
Test 12	800	500	A	A	A	A	D	A
Test 13	1000	500	A	A	A	A	D	A
Test 14	1000	800	A	A	A	A	D	A

\* Table 4 shows the results in the comparative examples (Comparative Examples 1 and 2) in which a dye and surface treated pigment were used instead of a pigment encapsulated by a polymer.